Materials Science & Engineering

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Subject Page: http://researchguides.case.edu

I. Purpose:

The primary purpose is to support the research and teaching activities of the Department of Materials Science & Engineering (DMSE). The discipline of materials science focuses on metals, ceramics, electronic materials, and composites. Materials science and engineering is a discipline that extends from the basic science of materials structure and properties to the design and evaluation of materials in engineering systems. The Department of Materials Science & Engineering offers programs leading to the Bachelor of Science in Engineering, Master of Science, and Doctor of Philosophy degrees. Publications in the field of materials science and engineering are of interest not only to materials scientists and engineers but also to researchers and students in a wide variety of disciplines, such as macromolecular science, biomedical engineering, electrical engineering, mechanical engineering, etc.

II. General Collection Guidelines:

A. Languages: English is the primary language of collection. Other languages may be considered with emphasis towards English translations.

B. Chronological Guidelines: Books and journals of current teaching and research interests are the primary focus. Retrospective collecting may occur at the request of a new faculty member or by a faculty member with a new research area.

C. Geographical Guidelines: There are no specific geographical limits of coverage, but primary focus would be North America.

D. Treatment of Subject: Selective acquisition of lower and upper division textbooks, laboratory manuals, introductory works and popular materials.

E. Types of Materials: Includes selective acquisition of treatises, encyclopedias, atlases, dictionaries, directories, abstracts, handbooks, and the proceedings and transactions of conferences and symposia. Theses and dissertations from other institutions and audio-visual material generally are excluded. All formats of materials will be considered, while prominence may be placed on electronic resources or OhioLINK offerings.

Journals are collected in both print and electronic formats.

F. Dates of Publication: Emphasis is on current works with retrospective materials purchased selectively.

G. Deselection: Since the collection is considered a research collection, deselection is done with great care. Special consideration is given to the relevance of older materials to the study of the history of science. Older or fragile materials that cannot be deselected are considered for relocation to remote storage.

H. Cooperative and Related Collections: Case is a founding member of OhioLINK, the Ohio Library and Information Network. OhioLINK is a statewide consortium of public and private colleges and universities, the State Library of Ohio, and technical and community colleges supporting a combined central catalog of statewide holdings, selected online indexes, full-text databases, reference tools, ebooks, & image collections. OhioLINK's goal is to provide easy access to information and rapid delivery of library materials throughout the state. Collection development decisions regarding shared electronic resources are made through the OhioLINK Cooperative Information Resources Management (CIRM) Committee. Additional collaboration on collection management may occur with other centers or libraries, as needed.

I. Other General Considerations: The major areas of research in the Department of Materials Science & Engineering include deformation and fracture, materials processing, environmental effects, surfaces and interfaces, and electronic, magnetic and optical materials.

J. Electronic Resources: Additional considerations are put into the electronic resources and databases that support the research of this department. To see the Materials Science & Engineering specific databases, proceed to http://library.case.edu/databases/rdbindex.aspx?subject=318|420.

III. Observations and Qualifications by Subject and LC Class:

CDP Levels:

A. Minimal Level: Indicates that only highly selective purchases-- usually materials either for reference use, general interest, or for the support of a very specific research need-will be made.

B. Instructional Level: Indicates that standard works and selected current works will be required to support undergraduate and most graduate instruction or sustained independent study. This will include reference and fundamental bibliographic tools pertaining to the subject and a selection of representative journals. Retrospective purchasing is usually limited to standard works.

C. General Research Level: Indicates that the library will acquire most of the materials required to support research through the doctoral degree level and the general research needs of the faculty. Allows for retrospective purchasing depending upon the characteristics and needs of the individual disciplines and their state of development in the collection.

D. Comprehensive Level: Indicates that all currently-published relevant material will be acquired. Involves extensive programs of retrospective purchasing and searching for lacunae.

E. Intensive Level: Indicates the library will strive to acquire all appropriate current and retrospective written or recorded materials in all languages, editions, translations, and formats; manuscripts and other archival materials are acquired extensively. This level is appropriate for the creation or maintenance of a collection serving as a national bibliographic resource.

Subject	LC Class	Location	CDP Collecting Level	Collection Manager	Collection Notes
Materials of Engineering: Includes construction materials, building materials, mechanical & physical properties, testing, physical properties, special materials, metals, ceramics, electronic materials, and composites.	TA 401-492	KSL	C	Brian C. Gray	See other Engineering Collection Management Policies for application in specific disciplines.
Materials of Engineering & Construction: Includes periodicals, societies, congresses, dictionaries, encyclopedia, popular works, material science as a profession, and study & teaching.	TA 401-404.5	KSL	A	Brian C. Gray	
Mechanical Properties & Behavior of Materials under Applied Forces: Includes strength of materials, testing of materials, nondestructive testing, and deformation of materials under stress.	TA 404.8-418.84	KSL	C	Brian C. Gray (Engineering) Shu Guo (Chemistry) Earnestine Adeyemon (Physics) Shu Guo	For chemical properties see QD (chemistry), TN (mining/geology), and TP (chemical engineering). For electric and magnetic properties see QC501-764

				(Geological Sciences)	(physics) and TK (electrical engineering).
Materials of Special Composition or Structure: Includes coatings, composites, fibers, foams, nanostructures, smart materials, thin films, etc.	TA 418.9	KSL	C	Brian C. Gray	
Materials: Includes nonmetallic materials, wood, masonry, ceramics, metals, and special forms & shapes in metal.	TA 418.95-492	KSL	C	Brian C. Gray	
Related Subject Area: Analytical Chemistry (Includes qualitative & technical analysis.)	QD 71-142	KSL	A	Brian C. Gray Shu Guo (Chemistry)	Also see Chemistry Collection Management Policy.

* This document will be reviewed on an annual basis or with significant departmental program changes.

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